

RCA Review

A technical journal published quarterly by RCA
Research and Engineering in cooperation with
the subsidiaries and divisions of RCA.

Index Volume 38, 1977

March

3 Color Signal Inphase and Quadrature Distortion Measurement and Evaluation
D. H. Pritchard and T. M. Wagner

33 Performance of Injection Lasers with External Gratings
H. S. Sommers, Jr.

60 The Effects of Emitter Impurity Concentration on the High Current Gain of
Silicon n-p-n Power Transistors
R. U. Martinelli and E. Jetter

76 High-Level Concentration of Sunlight on Silicon Solar Cells
L. S. Napoli, G. A. Swartz, S. G. Liu, N. Klein, D. Fairbanks, and D. Tamutus

109 Thermal Analysis of Single-Crystal Silicon Ribbon Growth Processes
A. E. Bell

139 Drain Characteristics of Thin-Film MOS FET's
S. T. Hsu

158 Technical Papers

160 Patents

163 Authors

June

171 Cross-polarization Performance of the RCA Satcom System
M. K. Lee

211 Properties of Amorphous Silicon and a-Silicon Solar Cells
D. E. Carlson, C. R. Wronski, J. I. Pankove, P. J. Zanzucchi, and D. L. Staebler

226 Electron Trapping Noise in SOS MOS Field-Effect Transistors Operated in the Linear
Region
S. T. Hsu

238 A Novel FET Frequency Discriminator
A. Rosen, D. Mawhinney, and L. S. Napoli

253 A Dual-Gate GaAs FET RF Power Limiter
A. Rosen, H. J. Wolkstein, J. Goel, and R. J. Matarese

257 Depolarization Due to Precipitation in Satellite Communications
I. P. Shkarofsky

310 Technical Papers

312 Patents

315 Authors

September

323 **Integrated Circuit Process and Design Rule Evaluation Techniques**
Alfred C. Ipri and J. C. Sarace

351 **The Study of Microcircuits by Transmission Electron Microscopy**
W. E. Ham, M. S. Abrahams, J. Blanc, and C. J. Buicchi

390 **Low-Resistance All-Epitaxial PIN Diodes for Ultra-High-Frequency Applications**
Y. S. Chiang and E. J. Denlinger

406 **A CMOS/Buried-n-Channel CCD Compatible Process for Analog Signal Processing Applications**
R. Dawson, J. Preisig, J. Carnes, and J. Pridgen

436 **Suppression of Premature Dielectric Breakdown for High-Voltage Capacitance Measurements**
Alvin M. Goodman

443 **Photoelectroluminescence of ZnS:TbF₃**
J. I. Pankove, M. A. Lampert, J. J. Hanak, and J. E. Berkeyheiser

449 **Technical Papers**

451 **Patents**

454 **Authors**

December

453 **Procedure for Minimizing the Cost Per Watt of Photovoltaic Systems**
David Redfield

475 **Optimization of Solar Cell Contacts by System Cost-Per-Watt Minimization**
David Redfield

486 **Optimum Shape of the Bus Bar on Solar Cells of Arbitrary Shape**
A. R. Moore

500 **Silicon Epitaxial Growth via Dichlorosilane in a Barrel Reactor**
Y. S. Chiang

512 **A 25-kV Bias-Isolation Unit for 1-MHz Capacitance and Conductance Measurements**
Alvin M. Goodman

533 **Aluminum-SOS Schottky Diodes**
S. T. Hsu

542 **Design Curves for Double-Heterojunction Laser Diodes**
J. K. Butler and H. Kressel

559 **One-Way Doppler Extractor**
Edward J. Nossen and Eugene R. Starner

588 **Technical Papers**

590 **Patents**

593 **Authors**

597 **Index to Volume 38, 1977**

Index to Authors, Volume 38, 1977

M. S. Abrahams The Study of Microcircuits by Transmission Electron Microscopy, September, p. 2

A. E. Bell Thermal Analysis of Single-Crystal Silicon Ribbon Growth Processes, March, p. 109

J. E. Berkeyheiser Photoelectroluminescence of $ZnS:TbF_3$, September, p. 443

J. Blanc The Study of Microcircuits by Transmission Electron Microscopy, September, p. 351

C. J. Buolocchi The Study of Microcircuits by Transmission Electron Microscopy, September p. 351

J. K. Butler Design Curves for Double-Heterojunction Laser Diodes, December, p. 542

D. E. Carlson Properties of Amorphous Silicon and a-Silicon Solar Cells, June, p. 2

J. Carnes A CMOS/Buried-n-Channel CCD Compatible Process for Analog Signal Processing Applications, September, p. 406

Y. S. Chiang Low-Resistance All-Epitaxial PIN Diodes for Ultra-High-Frequency Applications, September, p. 390

—Silicon Epitaxial Growth via Dichlorosilane in a Barrel Reactor, December, p. 500

R. Dawson A CMOS/Buried-n-Channel CCD Compatible Process for Analog Signal Processing Applications, September, p. 406

E. J. Denlinger Low-Resistance All-Epitaxial PIN Diodes for Ultra-High-Frequency Applications, September, p. 390

D. Fairbanks High-Level Concentration of Sunlight on Silicon Solar Cells, March, p. 76

J. Goel A Dual-Gate GaAs FET RF Power Limiter, June, p. 253

Alvin M. Goodman Suppression of Premature Dielectric Breakdown for High-Voltage Capacitance Measurements, September, p. 436

—A 25-kV Bias-Isolation Unit for 1-MHz Capacitance and Conductance Measurements, December, p. 512

W. E. Ham The Study of Microcircuits by Transmission Electron Microscopy, September, p. 351

J. J. Hanak Photoelectroluminescence of $ZnS:TbF_3$, September, p. 443

S. T. Hsu Aluminum-SOS Schottky Diodes, December, p. 533

—Drain Characteristics of Thin-Film MOS FET's, March, p. 139

—Electron Trapping Noise in SOS MOS Field-Effect Transistors Operated in the Linear Region, June, p. 226

Alfred C. Ipri Integrated Circuit Process and Design Rule Evaluation Techniques, September, p. 323

E. Jetter The Effects of Emitter Impurity Concentration on the High Current Gain of Silicon n-p-n Power Transistors, March, p. 60

N. Klein High-Level Concentration of Sunlight on Silicon Solar Cells, March, p. 76

H. Kressel Design Curves for Double-Heterojunction Laser Diodes, December, p. 542

M. A. Lampert Photoelectroluminescence of $ZnS:TbF_3$, September, p. 443

M. K. Lee Cross-polarization Performance of the RCA Satcom System, June, p. 171

S. G. Liu High-Level Concentration of Sunlight on Silicon Solar Cells, March, p. 76

R. U. Martinielli The Effects of Emitter Impurity Concentration on the High Current Gain of Silicon n-p-n Power Transistors, March, p. 60

R. J. Matarese A Dual-Gate FET Frequency Discriminator, June, p. 253

D. Mawhinney A Novel FET Frequency Discriminator, June, p. 238

A. R. Moore Optimum Shape of the Bus Bar on Solar Cells of Arbitrary Shape, December, p. 486

L. S. Napolli A Novel FET Frequency Discriminator, June, p. 238

—High-Level Concentration of Sunlight on Silicon Solar Cells, March, p. 76

Edward J. Nossen One-Way Doppler Extractor, December, p. 559

J. I. Pankove Photoelectroluminescence of $ZnS:TbF_3$, September, p. 443

—Properties of Amorphous Silicon and a-Silicon Solar Cells, June, p. 211

J. Preisig A CMOS/Buried-n-Channel CCD Compatible Process for Analog Signal Processing Applications, September, p. 406

J. Pridgen A CMOS/Buried-n-Channel CCD Compatible Process for Analog Signal Processing Applications, September, p. 406

D. H. Pritchard Color Signal Inphase and Quadrature Distortion Measurement and Evaluation, March, p. 3

David Redfield Optimization of Solar Cell Contacts by System Cost-Per-Watt Minimization, December, p. 475

—Procedure for Minimizing the Cost per Watt of Photovoltaic Systems, December, p. 463

A. Rosen A Dual-Gate GaAs FET RF Power Limiter, June, p. 253

—A Novel FET Frequency Discriminator, June, p. 238

J. C. Sarace Integrated Circuit Process and Design Rule Evaluation Techniques, September, p. 323

I. P. Shkarofsky Depolarization Due to Precipitation in Satellite Communications, June, p. 257

H. S. Sommers, Jr. Performance of Injection Lasers with External Gratings, March, p. 33

D. L. Staebler Properties of Amorphous Silicon and a-Silicon Solar Cells, June, p. 211

Eugene R. Starner One-Way Doppler Extractor, December, p. 559
G. A. Swartz High-Level Concentration of Sunlight on Silicon Solar Cells, March, p. 76
D. Tamutus High-Level Concentration of Sunlight on Silicon Solar Cells, March, p. 76
T. M. Wagner Color Signal Inphase and Quadrature Distortion Measurement and Evaluation, March, p. 3
H. J. Wolkstein A Dual-Gate GaAs FET RF Power Limiter, June, p. 253
C. R. Wronski Properties of Amorphous Silicon and a-Silicon Solar Cells, June, p. 211
P. J. Zanzucchi Properties of Amorphous Silicon and a-Silicon Solar Cells, June, p. 211

